

Izaac Laundry Mottiar

3A Mechatronics Engineering University of Waterloo

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[LinkedIn](#)

I'm currently in my third year of Mechatronics Engineering at the University of Waterloo, specializing in embedded systems and software development. Feel free to explore my [portfolio](#) to learn more about the projects I've worked on.

Technical Skills

Programming: Fluent in Python, C/C++, MATLAB, MS Excel, Ladder Logic, JavaScript and CSS.

Mechanical: Skilled in AutoCAD, SolidWorks, and Fusion 360, with experience in 3D Printing and Machining

Electrical: Experienced in circuit and PCB design, leveraging STM32, Arduino, and Raspberry Pi platforms.

Work Experience

UW Robotics Team — Firmware Team Member, Waterloo ON.

Jan. 2025 - April. 2025

- Implemented SPI communication between STM32 and ERCK 05SPI 360 encoder.
 - Utilized logic analyzer to capture and debug digital signal traces.

Hardware Test Intern — StandardBioTools, Markham ON.

Sept. 2024 - Dec. 2024

- Conducted lifecycle testing by integrating a pneumatic actuator and camera system to automate physical testing and validate results.
 - Developed a script to manage the process, ensuring autonomous operation and automated result collection.
- Analyzed and certified five gas manifolds by performing leak checks, pressure sensor accuracy tests, and MFC precision and resolution analysis.
 - Authored Project Change Requests to address design issues and improve designs.
 - Led supplier meetings to resolve MFC inconsistencies and streamline communication.
 - Developed Python scripts to automate data collection for pressure sensors, flow rates, and leak detection.

Manufacturing Engineering Intern — Greenhouse Juice Co. Mississauga ON.

Jan. 2024 - April. 2024

- Integrated the NIMCO Gable Top machine into production, increasing juice production by 10%.
 - Engineered custom jigs and developed UV monitoring protocols for precise liquid flow control.
 - Created an SOP and trained operators for consistent implementation.
- Developed a hydrogen peroxide detection system using OAK-1 PoE and Raspberry Pi 5, enabling real-time monitoring, LED updates, and automated Excel logging.
- Monitored machinery data, performed daily water titration tests, and tracked gas, water, and electricity consumption to optimize resource usage.

Controls Specialist Intern — JMP Solutions, Oakville ON.

May. 2023 - Sept. 2023

- Developed and programmed PLCs to regulate the drive speed of two KOBM slurry pumps for ArcelorMittal Dofasco, optimizing operational efficiency.
- Collaborated closely with the Vice President and General Manager of Integration and Engineering Services to successfully complete a corporate-wide file management initiative.
- Drafted nine x-axis motion and nine z-axis motion drives to control multi-cut saws used for cutting exhaust pipes of varying lengths for ArcelorMittal Dofasco.

Education

University of Waterloo — Candidate for Bachelors of Mechatronics Engineering.

Sept. 2022 - Present

Secondary School — Graduated with honours diploma and 98% average

Sept. 2018 - June. 2022

Outside of my professional pursuits, I am actively engaged in various university intramural sports, including soccer, basketball, and tennis. I also enjoy a wide range of other physical activities such as bouldering, racing, and backpacking. When time permits, I unwind by reading, playing video games, and on the off occasion, hanging out with my girlfriend.